



**FM200®
MODEL FT
FIRE EXTINGUISHERS**

**INSTALLATION INSTRUCTIONS
OWNER'S MANUAL**

THIS MANUAL IS AN INTEGRAL PART OF THE SYSTEM AND AS SUCH, THE
EXTINGUISHER MUST BE INSTALLED AND MAINTAINED ACCORDINGLY.

**READ AND COMPLY WITH THESE INSTRUCTIONS, WARNINGS
AND LIMITATIONS BEFORE INSTALLING.
SUITABLE FOR USE
FT MODELS : 20°F (-7°C TO 130°F (54°C).**

**ALWAYS MAINTAIN THIS OWNER'S MANUAL NEARBY
FOR OPERATOR REFERENCE.**

NOTICE

DO NOT INSTALL A FT MODEL IN LIEU OF AN APPROVED FIRE SUPPRESSION SYSTEM.

FT MODELS ARE FOR SUPPLEMENTAL PROTECTION ONLY. FT MODELS ARE NOT TO BE USED AS PRIMARY PROTECTION IN MARINE ENGINE COMPARTMENTS.

WARNING

CONCENTRATED AGENT AND BY-PRODUCT OF APPLICATION TO FIRE ARE TOXIC. AVOID BREATHING OF FUMES OR PROLONGED EXPOSURE. ACCIDENTAL DISCHARGE MAY OCCUR DURING HANDLING OR INSTALLATION OF THIS DEVICE, READ AND COMPLY WITH INSTRUCTIONS, WARNINGS, AND LIMITATIONS CONTAINED IN THIS MANUAL. DO NOT LIFT, CARRY, OR HANDLE BY VALVE. SO NOT DROP. KEEP AWAY FROM HEAT. KEEP AWAY FROM CHILDREN.

OWNER'S MANUAL & INSTALLATION GUIDE

**SEA-FIRE FM-200® AUTOMATIC FIRE EXTINGUISHER MANUAL:
PART NO. 123-186**

APPLICATION

FM-200® (CF₃CHFCF₃), the extinguishing agent, used in all Sea-Fire “FT” series fire extinguishers, is a suitable EPA accepted alternate replacement for Halon. FM-200® is electrically nonconductive and residue free extinguishing agent that requires no cleanup.

These features and the versatility of design make the “FT” series fire extinguisher ideal for a broad range of applications. These applications would include marine, recreational vehicles, commercial and industrial use where electrical or flammable liquids are likely source of fire. This would include many applications such as electrical compartments, paint and flammable storage lockers.

Sea-Fire “FT” extinguishers are designed to induce a minimum atmospheric concentration of 8.7 percent within the protected compartment.* The specification table in this manual lists the minimum and maximum approved compartment volume (size) allowable for each model. Volume can be determined by multiplying the compartment's **length x width x height which equals the volume in cubic feet or meters (LxWxH=V)**.

Exception: If the boat manufacturer has placed a permanently affixed label in the compartment specifying the gross volume less the volume of permanently installed tankage, then this volume may be used to determine the proper size extinguisher. Check specification table for proper application before making installation.

*Reference: NFPA-2001 National Fire Protection Assoc. Boston, MA and UL 2166 Underwriters laboratories

CAUTION: NEVER INSTALL A UNIT WITH A VOLUME RATING LESS THAN THE GROSS VOLUME OF THE COMPARTMENT TO BE PROTECTED. DO NOT DEDUCT FOR ENGINES, REMOVABLE TANKS OR OTHER EQUIPMENT.

SYSTEM OPERATIONS

Sea-Fire units described in this manual are automatically actuated by a heat actuated tube. Discharge will occur when the tube temperature rises to the system activation point as shown in the specification table and on the label attached to each unit. Upon discharge, which is accompanied by a loud report and a hissing sound, the extinguishing agent (FM-200®) floods the compartment with an electrically nonconductive, noncorrosive vapor that stops the combustion process through both physical and chemical means. FM-200®, being an efficient heat transfer agent, literally removes heat energy from the fire to the extent that the combustion reaction cannot sustain itself.

CAUTION: IN CASE OF EXTINGUISHER DISCHARGE, DO NOT RUSH TO OPEN THE PROTECTED COMPARTMENT. LET THE EXTINGUISHING AGENT WORK FOR SEVERAL MINUTES. HAVE A PORTABLE EXTINGUISHER AVAILABLE AND USE CARE WHEN OPENING THE COMPARTMENT.

AVOID BREATHING FIRE RELATED FUMES OR VAPOR.

NOTE: It is important to retain the designed vapor concentration within the compartment to insure complete fire outage. Upon discharge, all powered ventilation (blowers) must be shut down.

PRESSURE SWITCH

Sea-Fire "FT" series extinguishers are equipped with a factory installed pressure switch which is intended for cylinder pressure supervision and may also be used to control other electrical functions (engine shutdown, air exchange equipment, electric supply, etc.)

When using the pressure switch as an electrical disconnect for any equipment shutdown function, a means of overriding (bypassing, shunting) the pressure switch must be provided in order to return the affected equipment to an operational mode after extinguisher discharge has occurred. The pressure switch is a single pole single throw (SPST) type that is normally closed (NC) with the system in the charged condition. Discharge or loss of system pressure will release the contacts to an open state thereby cutting off any electrical current flow.

NEVER USE PRESSURE SWITCH FOR ELECTRICAL LOADS OVER RATED CAPACITY.

SWITCH SPECIFICATIONS

4.0 AMPS AT 12 VDC

2.0 AMPS AT 28 VDC

For applications requiring larger load capacities, see **OPTIONAL EQUIPMENT** section IN THIS manual or contact factory.

GEN SETS AND POWERED VENTILATION (BLOWERS)

DIESEL ENGINES

Continued operation of diesel engine(s) and or powered ventilation units will deplete the extinguishing agent and may cause a fire re-flash. **Diesel engine(s) must be automatically shutdown upon extinguisher discharge.**

Note: Power ventilation (blowers) that exceeds one air change per minute within the protected compartment must be automatically shutdown upon extinguisher discharge.*

*ABYC requirement - Standard A-4

GASOLINE ENGINES

Shutdown may be accomplished by interruption of the electrical circuit between the ignition switch and the engine coils.

NOTE: Sea-Fire optional engine interrupt systems will automatically shutdown engines and powered ventilation upon discharge of the fire SUPPRESSION system. They are available in 12 and 24-volt models with 3, 5 or 8 control circuits. refer to OPTIONAL EQUIPMENT section in this manual.

REMINDER: Sea-Fire systems shall be considered as supplementary to the number of portable fire extinguishers required on-board and are designed and intended for enclosed unoccupied compartment installations that are not subject to direct weather or water.

ELECTRIC MOTORS

In case of a fire and system discharged, the electrical supply to the motor must be disconnected. Failure to do so may result in re-ignition after the FM-200® concentration depletes.

Disconnect may be accomplished by using a shutdown system. See OPTIONAL EQUIPMENT.

INSTALLATION

READ ENTIRE INSTRUCTION MANUAL AND CYLINDER NAMEPLATE PRIOR TO INSTALLATION.

These installation instructions are intended to cover most normal installations. Additional technical or application information can be obtained by contacting:

Sea-Fire Marine
Baltimore, Maryland, USA
Tel: 410-687-5500

or

Sea-Fire Europe LTD
Portsmouth, England
Tel: (0) 2392 462723

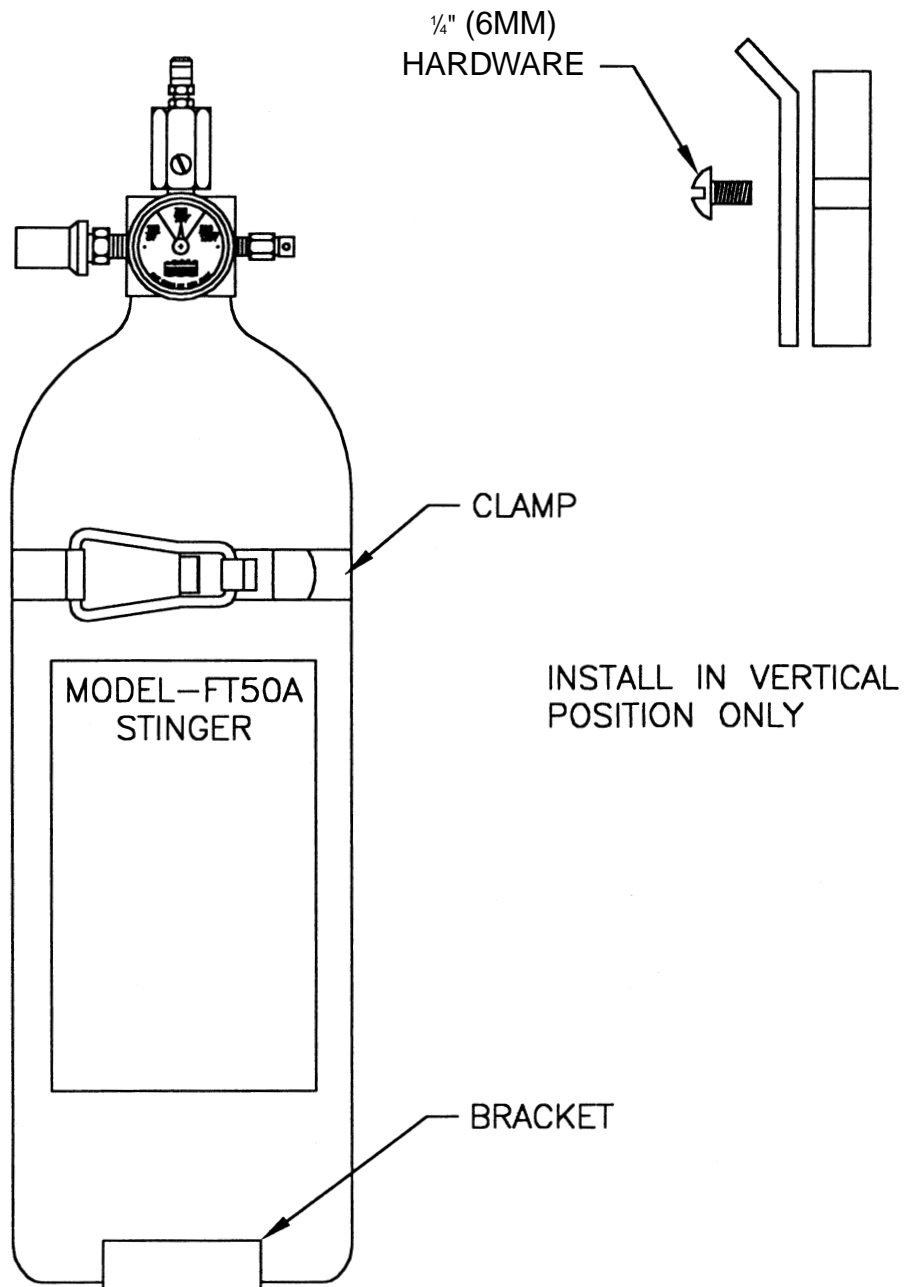
Website: www.sea-fire.com

CAUTION:

1. DO NOT INSTALL IN AN AREA DESIGNATED FOR OCCUPANCY.
2. ACCIDENTAL DISCHARGE MAY CAUSE SERIOUS INJURY.
3. HANDLE THE CYLINDER WITH EXTREME CARE.
4. WEAR EYE PROTECTION.
5. DO NOT LIFT OR CARRY CYLINDER BY THE MANIFOLD OR ACTUATOR COMPONENTS.
6. DO NOT ATTEMPT TO LOOSEN OR REMOVE ANY EXTINGUISHER COMPONENT.
7. DO NOT ATTACH SEA-FIRE EXTINGUISHER ON UNDERSIDE OF COVER OR COMPARTMENT HATCH THAT COULD BE THROWN CLEAR DUE TO POSSIBLE EXPLOSION.
8. DO NOT MOUNT WHERE AN ACCUMULATION OF STANDING WATER COULD BLOCK SENSOR OR CAUSE CORROSION.
9. EXTINGUISHER TO BE MOUNTED IN THE VERTICAL POSITION ONLY.
10. DO NOT USE FOR PRIMARY ENGINE COMPARTMENT PROTECTION.

EXTINGUISHER INSTALLATION:

- Step 1** Carefully remove extinguisher from carton and visually check for damage in shipment.
- Step 2** To ensure that the extinguisher is operational, both the weight and pressure indicator must conform with the extinguisher specification as shown on the nameplate. Weigh extinguisher (less bracket) on an accurate calibrated scale before installing. Record date and weight on tag provided for this purpose.
- Step 3** Choose a suitable location on the compartment bulkhead. The location should be where accidental damage is unlikely to occur.
- Step 4** Remove the extinguisher from the bracket. Using the bracket as a template, drill (4) ¼" diameter holes. Mount the bracket using ¼" hardware. (See Figure 5)
- Step 5** Install the extinguisher into the bracket and latch clamp.



(Figure 5)

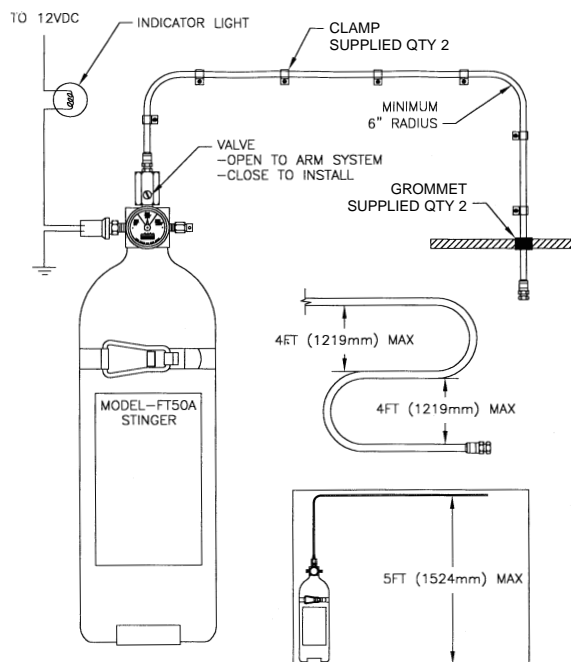


Figure 6

Step 6 Feed detection tube into the compartment. Ensure rubber grommets (supplied) are used when tubing is fed through a bulkhead. (See Figure 6)

Step 7 Secure the detection tubing to the bulkhead by using the clips and screws supplied. Nylon wire ties may be used in lieu of the clips and screws.

Step 8 Attach tube to system by pushing tube completely over nipple. Tighten using a 12MM wrench.

WARNING

WHEN INSTALLING THE DETECTION TUBING, DO NOT KINK THE TUBING AND DO NOT EXCEED THE MINIMUM BEND RADIUS. FAILURE TO FOLLOW THESE DIRECTIONS CAN RESULT IN A SYSTEM FAILURE. (See Figure 6)

Step 9 Using a straight screwdriver, turn on the detection tubing valve. (Turn ¼ turn counterclockwise) (See Figure 8)

Step 10 To ensure the detection tube was not damaged during installation, visually check the tubing for leaks.

THE FT EXTINGUISHER INSTALLATION IS COMPLETE.

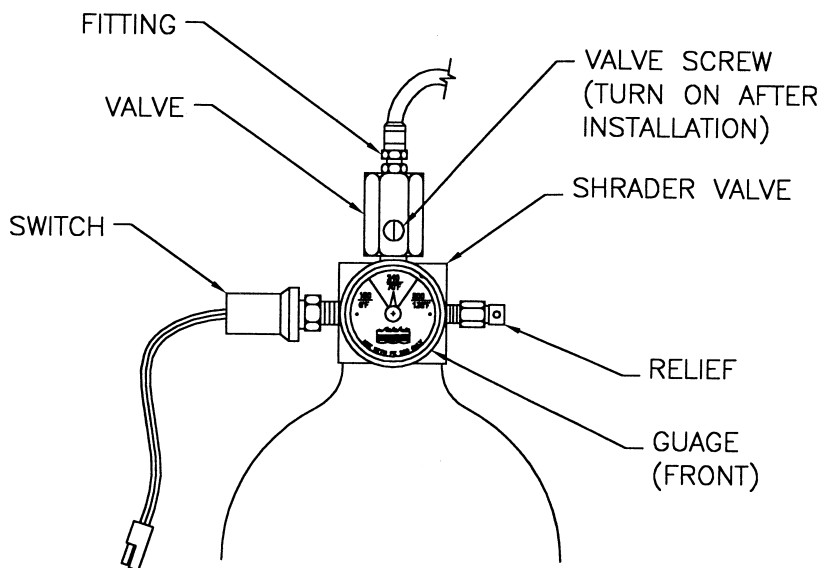


Figure 9

INDICATOR LIGHT OPERATION

All Sea-Fire extinguishers approved for marine applications are packaged with an indicator light and escutcheon. The indicator light (unless replaced by another Sea-Fire method) must be installed for system supervision and operator awareness. When properly installed, activation of electrical power to the system will illuminate the light indicating normal charged condition. System discharge or loss of pressure will immediately extinguish the indicator light. In the event that the indicator light is not lit when power is applied, check for the following conditions:

1. Check pressure indicator gauge for proper range.
2. Check fuse and indicator light and replace if defective (lamp replacements available from factory).
3. Check for loose electrical connections.
4. Remove and weigh system cylinder as described in MAINTENANCE Section of the manual.

INDICATOR LIGHT INSTALLATION

Select a location at the helm on or near the console that is in full view of the helmsman. the location selected must have access for electrical wiring. Remove the adhesive protective cover from back of indicator escutcheon and attach. For proper adhesion, surface must be clean and dry and temperature must be above 50°F (10°C). Use the preformed

escutcheon hole as a template and carefully drill a $\frac{5}{16}$ " (8mm) hole. Insert indicator light wire through hole and seat light assembly by pressing clip into position. Indicator light is now ready for wiring (**see Figure 3**).

CAUTION: PRIOR TO WIRING INDICATOR LIGHT, TURN OFF ELECTRICAL POWER BY SWITCHING OFF CIRCUIT BREAKER, REMOVING FUSE OR DISCONNECTING POSITIVE BATTERY TERMINAL. FAILURE TO DISCONNECT ELECTRICAL POWER WHILE MAKING ELECTRICAL CONNECTION CAN RESULT IN INJURY FROM FIRE OR ELECTRICAL BURNS.

The indicator light is rated for 12 VDC (contact factory for other voltages). Wire in accordance with the American Boating and Yacht Council standard E-9 "Direct current Electrical System on Boats, copies of which may be obtained from ABYC, Edgewater, MD, USA 21037, 410-956-1050.

Supplies, which are not included with your Sea-Fire system, should be at hand before indicator light installation, are as follows:

1. Five (5) ampere in-line fuse and holder
2. Sufficient length of insulated 16 AWG stranded wire
3. Crimp on wire connectors
4. Crimp pliers, hand tools

Attach one wire lead from the in-line fuse to the ignition position on the starter switch. Connect other lead from the in-line fuse to the indicator light. Connect remaining indicator lead to one of the Sea-Fire cylinder pressure switch connector wires. Connect the remaining cylinder pressure switch lead to common ground., which may be the negative battery buss at the control panel, or directly to the engine block (see Figure 3).

CAUTION: Electrical systems vary from vessel to vessel and these directions may not be applicable for your installation. Should you have any doubts of safely accomplishing this installation, contact a qualified marine electrician or SEA-FIRE MARINE USA at 410-687-5500 for technical assistance.

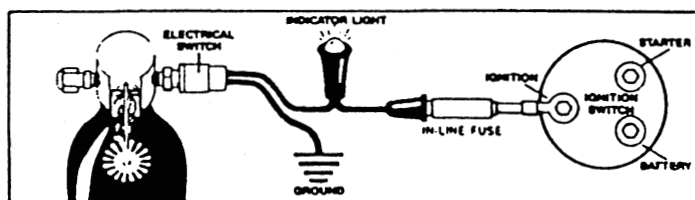


Figure 3

SYSTEM MAINTENANCE

WARNING: DO NOT ATTEMPT TO DISASSEMBLE ANY PART OR COMPONENT OF THE EXTINGUISHER. THIS UNIT IS PRESSURIZED AND SERIOUS INJURY COULD RESULT. CONTACT THE FACTORY OR AN AUTHORIZED DEALER FOR SERVICE.

Before operating, visually check to insure indicator light is operational, and cylinder pressure indicator is in the normal range. All fire suppression systems containing liquefied gas require periodic weighing to ensure a fully charged unit. Pressure gauges indicate the ability to discharge the agent, but not the quantity of extinguishing agent. The cylinder (less bracket) must be weighed on at least a semiannual basis, and be replaced immediately if gross weight has decreased by quantity noted on the specification label.

Never paint or obstruct the detection tube, as this will adversely affect its operating characteristic. **FT models are non-refillable.** See nameplate on cylinder for instructions and **OUT OF WARRANTY REPLACEMENTS** section of this manual.

REMINDER:

- **FREQUENTLY CHECK GAUGE FOR PROPER PRESSURE**
- **WEIGH CYLINDER TO INSURE AMPLE EXTINGUISHER AGENT**

LIMITATIONS

Sea-Fire FT model series FM-200® automatic fire extinguishers are designed and tested to extinguish Class C (electrical) and Class B (flammable liquid) fires in enclosed compartments only. Any open doors or hatches will allow discharging agent to escape and will seriously affect the ability of the agent to extinguish the fire.

Only one extinguisher may be used to protect a compartment. If more than one extinguisher is used to achieve the required amount of agent concentration, there is no guarantee that several extinguishers will actuate simultaneously as each extinguisher operates independently. Several extinguishers may be used only if each independent extinguisher is capable of protecting the entire volume of the compartment.

OPTIONAL EQUIPMENT

SDDA I	Panel mounted visual/audible discharge alarm unit.
ESRS-2	Panel mounted system status indicator with override switch for engine(s) restart. For use with the ESRS engine shutdown system as a replacement or add-on second helm station.
ESRS III, V, VIII	Engine and powered ventilation (blower) shutdown system. Includes one circuit control unit and one panel mounted ESRS-2 visual/audible system status indicator with override switch for engine restart. available with 3,5, or 8 control circuits in 12 or 24 VDC models.
ESRS-WT III, V, VIII	Same as ESRS-MARK shutdown system, but also includes a factory-installed nominal 20-second release timer on the engines control circuits. For use in diesel engines that shutdown through activation of a momentary device (i.e., push button, lever, etc.).
SFAB12 (24)	Discharge alarm bell 6" round 12 or 24 VDC models.
ESEH-10	10 foot (3.05 meter) extender harness for use with ESRS systems.
ESEH-30	30 foot (9.15 meter) extender harness for use with ESRS systems.

Clean agent (FM-200®) Portable Fire extinguishers are also available.

Contact Sea-Fire or an authorized Sea-Fire dealer for details.

THREE (3) YEAR FT SERIES LIMITED WARRANTY

We warranty to the original retail purchaser all SEA-FIRE extinguishers for a period of three (3) years after retail purchase against defective material and faulty workmanship. any system found to be defective during the warranty period will be repaired or replaced free of charge upon the prepaid return of the defective system. Proof of purchase required, otherwise date of manufacturer on extinguisher label will apply. This warranty gives you specific legal rights which may vary by state or country.

THE FOREGOING WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES WITH RESPECT TO THE SYSTEM INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NO PERSON IS AUTHORIZED TO GIVE ANY OTHER WARRANTY, OR TO ASSUME FOR SEA-FIRE MARINE ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OR INSTALLATION OF ITS PRODUCTS. REPLACEMENT OF THE SYSTEM WILL BE THE SOLE REMEDY WITH RESPECT TO ANY LOSS OR DAMAGE TO PROPERTY. BUYER IS NOT RELYING ON SELLER'S JUDGMENT REGARDING BUYER'S PARTICULAR REQUIREMENTS AND BUYER HAS HAD AN OPPORTUNITY TO INSPECT THE PRODUCT TO BUYER'S SATISFACTION.

OUT OF WARRANTY REPLACEMENTS/RECHARGES

SEA-FIRE "FT" Model Series cylinders comply with DOT Specification 39. These cylinders are not refillable. The discharged cylinder will be replaced with comparable Sea-Fire extinguisher upon prepaid return of the discharged system for one-half of the current suggested list price.

RETURN TO:

UNITED STATES

SEA-FIRE MARINE Division of Metalcraft Inc.
9331-A Philadelphia Road
Baltimore, Maryland 21237 USA

EUROPE

SEA-FIRE EUROPE LTD
The Teal building, Northney Marina
Hayling Island, Portsmouth
P011 ONH England

Website: www.sea-fire.com

**FT SPECIFICATION TABLE
SEA-FIRE "FT" SERIES AUTOMATIC FIRE EXTINGUISHERS**

MODEL	AREA OF PROTECTION		FM-200®		DIAMETER X HEIGHT		TUBING SUPPLIED	
	CU.FT. RANGE	CU.M. RANGE	LBS	KG	IN	MM	FT	MM
25	25	.7	1.1	.5	2.5 x 9	64 x 229	10	3000
50	50	1.4	2.2	1	3.1 x 12	79 x 305	10	3000
75	75	2.1	3.3	1.5	3.1 x 15	79 x 381	10	3000
100	100	2.8	4.4	2	3.5 x 15	89 x 381	15	4500
125	125	3.5	5.5	2.5	4.1 x 16	104 x 406	15	4500
150	150	4.2	6.6	3	4.1 x 16	104 x 406	15	4500

OPERATING TEMPERATURE RANGE: 20°F to 130°F (-7°C to 54°C)

ACTUATION TEMPERATURE: 175°F (79°C)

ALL FT MODELS APPROVED FOR VERTICAL MOUNTING ONLY.

Cubic Feet = CU. FT.
Cubic Meters = CU.M.
Pounds = LBS.
Feet = FT.

Kilograms = KG
Inches = IN
Millimeters = MM



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